Appendix E: Myrtle Conservation Assessment, 2016

ASSOCIATION for MANITOBA ARCHIVES ASSOCIATION MANITOBAINE des ARCHIVES

OUTREACH SERVICES - SITE VISIT REPORT

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Date of Visit: August 9, 2016

INTRODUCTION

The City of Winnipeg Archives is housed in a repurposed warehouse at 50 Myrtle Street pending the renovation of its main building at 380 William Avenue. The Archives expects to remain for an indeterminate period of time, and the building has several limitations that staff would like to better understand.

Archival conservator Jane Dalley met with City Archives staff in August 2016. They toured her through the building, and provided information on both the buildings and their collections. Sticky insect traps were placed in several locations and checked on August 13th and September 16th. The following report is based on that site visit. It identifies the agents of deterioration that the building is most vulnerable to, and provides recommendations on how to mitigate their effects. It is hoped that these recommendations will assist the Archives in the ongoing effort to preserve their holdings.

The Association for Manitoba Archives assists its members in implementing best practices for preserving their archival heritage through site visits, training, advice and disaster assistance. Further consultation may assist the City of Winnipeg Archives in achieving best practices for preserving their archival heritage. This service is provided free of charge through the with the AMA Advisory Services Program which is funded by the Provincial Heritage Agency Grant Program.

RECOMMENDATIONS

Building Maintenance

Arrange with the City for a regular building maintenance plan that includes inspection of the roof and drainage systems, and the adjustment/replacement of weather-stripping on all exterior doors.

Replace the stained ceiling tiles and check for the cause of the staining. Monitor the replaced tiles for new staining.

Repair the exterior wall surrounding the damaged overhead door to prevent water infiltration and rodent access.

Anchor the building's drainpipe firmly in the basement drain and install a cover over the open drain pit.

Move shelves away from exterior walls or pull boxes on these shelves away from the wall, to the extent that the shelf allows.

Implement an Integrated Pest Management program (IPM) based on the principles of *Avoid, Block, Detect, Respond & Recover.*

Environment

Monitor the environment in its storage areas on an ongoing basis in order to determine actual conditions and ask the City for input on improving the environment in the storage areas, based on monitored conditions.

Planning

Request renovations based on the current and future needs of the holdings and the anticipated length of occupancy.

Install water sensors in the basement and main floor storage areas, either free-standing or tied in to the building's monitoring panel.

Complete the emergency plan.

Pest Control

Follow some or all of the steps of an Integrated Pest Management program.

BACKGROUND

The Site

The City of Winnipeg Archives is centrally located in a leased building that was formerly a commercial manufacturing plant. The combined warehouse and office space has been repurposed to their needs and they are the sole occupant. They have been in the building for two years, originally as a temporary measure, but possibly on a long-term basis.

The building was constructed in 1947, with several additions and renovations made since that time. It is a one- storey building with a mezzanine and partial basement. There is metal siding on the front and one side, and stucco/concrete on the others. The foot print, or ground area, of the building is 12,900 square feet. It has exterior wood walls, wood and drywall interior walls, a brick and concrete basement, and wood or concrete floors covered with linoleum, both sheet and tiled. The flat roof has a tarpaper covering. It was replaced in 2004. A physical inspection conducted around 2013 found it to be in good condition.

Drainage from the roof runs down through the building into the partial basement, exiting through a pit in the floor. Windows are single-pane aluminum. The original basement windows appear to have been filled in. Exterior walls are insulated and equipped with a vapour barrier. New weatherstripping has been installed on exterior doors though daylight visible through gapped areas indicates the need of adjustment or further replacement

Smoke/heat detectors and floor drains are located throughout the building. There are no fire alarm control panel, annunciator panel or pull stations. There is an automatic sprinkler system throughout the building, connected to a panel with remote monitoring by API Alarms, and hand-held dry powder extinguishers. Water pipes for the sprinkler system run throughout the storage areas. The partial basement and processing work space are equipped with two large drains.

The mezzanine is used as office space and for storage of supplies. The partial basement contains the building's original, asbestos-wrapped boiler. It is not used by the Archives. The drainage pit for the roof is beside the boiler.

Archival records are stored and accessed on the main level of the building. There are several storage areas, separated by vinyl strip warehouse curtains. These areas are used exclusively for the storage of archival records, except for a few work cubicles in the processing area. Most of the storage areas have at lease one if not two outside walls. Some shelving is right against outside walls; other units are distanced by the thickness of a 2x4. A space of 6 cm is kept between the lowest shelf and the floor. Records are not stored on the floor though they may be kept on pallets temporarily.

Shortly after occupancy, the buidling's wet-pipe fire suppression system was repaired to deal with a water pressure issue and its potential for damage is considered low though the water pipes for the sprinkler system do run throughout the storage areas. The building has experienced basement flooding due to a moving drain pipe, roof leaks and water infiltration underneath an overhead loading door. There are water stains on walls and ceiling tiles.

The Archives was impacted by flooding at their previous location, resulting in damage to some records. Staff do not consider mould to be an issue in the current location as the building is generally dry. When water enters the loading dock from driving rain during a downpour, it is cleaned up. Staff have recently begun drafting an emergency plan.

There is no history of vandalism against the holdings or the building. The research room is supervised and entrances to the building are locked at all times.

Environment - Systems and Equipment

There is a general heating/cooling system for the building that runs 24 hours/day and seven days/week though the cooling component only serves the offices and not the storage areas. A gas furnace supplies heat to the offices and a forced-air industrial gas heater supplies the storage rooms. There are filters on the furnace and heaters but the rating is unknown. Dust is not a problem.

The office area heating/cooling system is considered adequate for human comfort. Temperature and relative humidity levels in storage rooms are not controlled or monitored. There are no alarms to indicate excessive levels of heat or cold, and temperature and humidity levels throughout the building are believed to fluctuate widely. The storage areas are frequently hot in summer as there is no cooling system for them. The storage rooms are also cold in winter, despite the heating system. A window-mounted vent fan is located in a high window of one of the storage rooms. It is activated by an unkown setpoint to bring fresh air into the storage rooms.

Pest Control

Staff consider the building to be accessible to insects and rodents. Silverfish are often seen. A commercial pest control company uses bait traps and live traps to control mice both inside and outside the building. The pest control company has pointed out weak spots where rodents can enter.

New acquisitions are not checked for pest infestation or mould before being brought into the Archives or placed in storage. There have not been any problems to date. Plants are found in some offices. Food is prepared and consumed in the lunch room. Garbage and recycling bins in the office are emptied 3 times per week (Monday, Wednesday and Friday).

Pest traps were placed in twelve different areas in the building. They were checked after one week and nine of the traps were clean, though basement traps contained two springtails, a spider and a booklouse. The trap in the Archives workspace contained a springtail. The traps were checked again after four more weeks and were found to contain clothes moths, firebrats and a dermestid larva.



Book Lice, more correctly known as Psocids**,** feed on pastes and glues in books, including the starch sizing in book cloth or along the edge of pages. They are best known for eating microscopic moulds and are consequently a good living indicator of damp conditions and excessive moisture. Booklice will not cause as much damage to collections as will the damp conditions that attract them.



Spiders are benign predators and seasonal opportunists, entering buildings in search of moisture or food and lodging. Their presence is an indication that there is a food source. Large numbers found inside a building raise concerns for the integrity of the building envelope. Also, their dead bodies provide food for less desirable pests.



Springtails are small insects with an appendage under their tail called a "furcula", which works like a spring. They are attracted to just about anyplace it is both dark and moist, around drain lines in bathrooms, kitchens, basements, crawl-spaces, behind walls, under slabs or siding, and under mulch**.** They do not pose a danger to collections, eating only mould, mildew, fungus and decaying organic matter. Large populations can inhabit wall voids, thereby providing a food source for other less desirable insects.



Pillbugs and their cousins the **Sowbugs** prefer damp environments. They are usually found in damp or decaying vegetation, wood piles and decomposing leaves adjacent to a building. Their presence inside a building indicates a moisture problem and the existence of access routes.



Mice usually migrate through drains, cracks and crevices, elevator shafts, air and heating vents, and above false ceilings. They are attracted initially to sources of food, moisture and warmth, and then radiate out from a central location. They like to make nests out of cellulosic material and eat anything that can be digested. Once established within a building, mice become long-term inhabitants unless controlled. They can survive without food and water for long periods of time, even obtaining moisture from dry food. As well as being difficult to eradicate, they are prolific and can carry diseases such as Hantavirus and Histoplasmosis. Even dust that has been urinated on can cause an allergic reaction when inhaled or touched.



The larvae of the **Common Clothes Moth** will eat wool, hair or feathers. Damage generally appears in hidden locations such as in crevices of upholstered furniture, and in carpeted areas beneath furniture. Food, perspiration and urine will attract them. Thorough cleaning is recommended beneath heavy pieces of furniture; along baseboards and in cracks where hair and debris accumulate, in closets, inside and behind heaters, and inside vents.



Firebrats firebrats like very warm, dry places with a relative humidity as low as 30% and temperatures above 35°C. They live around ovens, heating units, fireplaces, hot water pipes and furnaces. They can crawl along pipelines and through openings in walls or floors from one level to another.



Dermestid larvae vary in size from a pen dot to several millimetres and this one was very small, indicating it is at the beginning of its life cycle. Although there was only one, it is doubtful that it lives alone. Dermestid larvae are voracious eaters and are attracted to glue and bodily secretions in carpets, clothing, fabrics, books, leather, furs, natural history specimens, furniture, and other insects.

City of Winnipeg Pest Trap Results – 50 Myrtle Street

Trap Location and Number	Contents – August 13/16	Contents – September 16/16
#1 – Mezzanine furnace room by furnace	Clean	Clean
#2 – Lower furnace room	Clean	2 firebrat nymphs
#3 – Archives supply room	Clean	1 housefly
#4 – Lunch room – under sink	Clean	Clean
#5 – Staging area	Clean	1 spider, 1 firebrat, 1 dermestid larva, 4 springtails, 1 sowbug
#6 – Tax room by small back door	Clean	1 casemaking clothes moth and 1 firebrat
#7 – Assessment room by overhead door	Clean	5 spiders
#8 – Basement by boiler	2 springtails and 1 spider	2 springtails and 2 spiders
#9 – Basement by pallets	1 booklouse	1 spider and 1 sowbug
#10 – Archives workspace	1 springtail	Clean
#11 – Research room by computers	Clean	2 spiders, 1 casemaking clothes moth and 4 firebrat nymphs
#12 – Primary research room in NK corner	Clean	Clean

SUMMARY

The Archives ensures the retention and management of records required to meet legal and fiscal obligations for the City of Winnipeg through programs that facilitate the selection, preservation and research use of City records. In order to provide these programs, it requires a secure building that offers suitable space for the storage and access of its holdings.

The current temporary building is a good-size, secure, mid-20th century building with large open storage areas, an upgraded public/office space, and several smaller rooms that serve as bathrooms, a kitchen, a photocopy room, supply rooms and offices. It offers good public and staff areas, and space for working with and storing several thousand linear feet of records.

Storage conditions are not ideal since the building systems– roof, electrical, plumbing, foundation, heating, windows –were designed for a factory. It is unlikely that anything other than the basic standards for records storage could be met. Since the building is the first line of defence for the Archives' records, it is recommended that the Archives arrange with the City to establish a regular maintenance plan for building that includes inspection of the roof and drainage systems, and the adjustment/replacement of weather-stripping on all exterior doors.

It is recommended that the City maintenance staff be asked to replace the stained ceiling tiles and check for the cause of the staining. It may be that the damage is old, or that condensate from overhead pipes is dripping onto the tiles. Whatever the cause, it is recommended that Archives staff monitor the replaced tiles for new staining.

Of the ten agents of deterioration[1], the Archives' holdings will be most affected by *water*, *pests*, *incorrect temperature* and *incorrect relative humidity*. Of these four, incorrect temperature and relative humidity levels are likely to affect acidic paper, acetate film base, newsprint, and books and papers dating after1850. It is recommended that the Archives monitor the environment in its storage areas on an ongoing basis in order to determine actual conditions.

The storage areas are cold in winter and hot in summer. Without an airtight room shell created by a continuous air barrier and greater thermal insulation values, heating and cooling large, high-ceiling spaces is a challenge. Some improvements might be possible through the installation of ceiling fans that would circulate warm and cool air. Upgrading the windows, including the current hole-in-the-wall window fan, could also help. It is recommended that the Archives ask the City for input on improving the environment in the storage areas, based on monitored conditions.

Water blows in under one of the overhead doors during extreme weather and has resulted in rusting of the metal loading apron. Daylight can be seen under the door when closed, which often indicates that the weather stripping requires adjusting or replacement. However, when viewed from outside, deterioration of the wall underneath the door is visible. It is recommended that the exterior wall surrounding this door be repaired as it not only allows water infiltration but permits rodent access through the gaps and holes in the metal apron.

Archival records are a wonderful source of food and housing for insects and rodents, and pests will take any opportunities to make themselves quickly at home. The types of insects caught on the sticky traps indicate that there is pest activity in the Archives building.

Insects are less likely to enter a building if there is no easy access point, and the previous recommendations to upgrade weather stripping will reduce access. In addition, it is recommended that the Archives follow some or all of the steps of an **Integrated Pest Management** program. IPM is based

[1] A complete list of all ten agents of deterioration can be found at http://canada.pch.gc.ca/eng/1444330943476

on the principles of *Avoid, Block, Detect, Respond & Recover* is more effective in dealing with pests than stand-alone procedures such as poison, which may not treat the cause of an infestation. A balance of prevention, good housekeeping, monitoring and non-chemical control can often eliminate or control pests with a minimum of pesticides and expense.

1. **Reduce the risk of pest infiltration for the building.** Seal all exterior cracks and holes around windows, door frames or light fixtures. Cover vents with fine copper mesh, sealed in place around the edges. Clean debris away from the exterior of your building and if possible, run an 18-inch wide path of pea gravel around it. Keep dumpsters tightly closed. Examine new acquisitions before they enter your building or isolate them until you can be sure that they are pest-free. Remove dead leaf or other organic material from around the building and ensure good drainage. Eliminate damp areas inside.

2. **Avoid providing a habitat for pests.** Maintain clean, orderly storage rooms, especially in attics and basements, and dispose of empty cardboard boxes. Maintain plumbing and line toilet tanks to reduce leaks and condensation. Avoid bringing firewood inside unless it is pest-free. Choose sheet flooring instead of floor tiles to avoid insects living in the cracks. Avoid false ceilings as they provide pathways to rodents. Store boxes on shelves, and not in direct contact with the floor.

3. **Avoid providing food to pests.** Avoid storing food in desk drawers, or eating at desks. Check the coils and insulation on fridges for insects. Keep foodstuffs in sealed containers. Store garbage and recycling in covered containers and empty them every day. Wash dirty dishes as they occur. Keep the cupboards under sinks clean and organized as they are close to a source of water, and provide excellent hiding places.

4. **Implement regular housekeeping.** Use a HEPA vacuum cleaner and crevice tool to vacuum up lint, hair and other organic debris in cracks, crevices and corners, behind radiators, in vents, under shelving units and in closets. This removes the habitat for live insects as well as dead insect bodies that attract other insects.

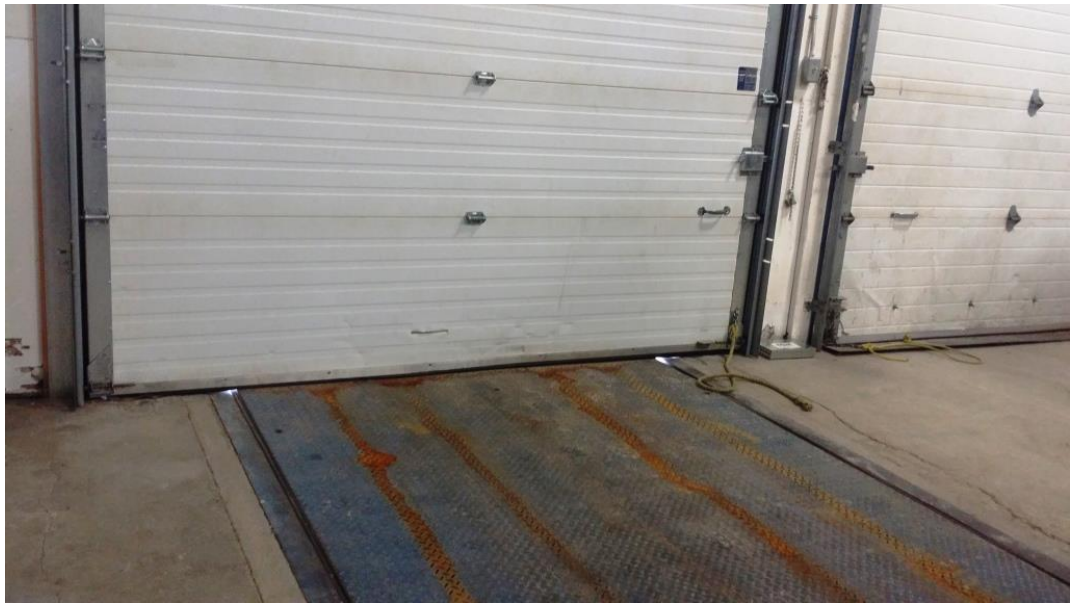
5. **Monitor.** If you suspect that there is a pest problem in your building, monitor with purchased or home-made traps so that you can identify the pests and where they are located. Pheromone traps for clothes moths are available at major hardware stores.

6. **Determine the source of the problem**. As well as living in dark spaces like closets or attics, insects could be occupying an abandoned bird's nest, or the carcass of a dead rodent. A large number of pillbugs, sowbugs, booklice and silverfish can indicate moisture problems which require evaluation by a contractor trained in moisture/mould remediation.

7. **Bag infested artifacts**. Freeze artifacts as per the Canadian Conservation Institute's Note 3/3 *Controlling Insect Pests with Low Temperature*. If a freezer is not available, winter conditions may provide a cold enough environment.

Staff have recently begun drafting an emergency plan, and it is recommended that they complete it.

Overhead Door







The internal drain system that brings water from the roof to the basement drain poses a risk for the Archives should the roof drain become blocked, the internal drain pipes become damaged, or the basement drain malfunction. This could result in damage to the building and archival records, including seen or unseen mould growth. It is recommended that the roof and drainage system receive an annual inspection to ensure this does not happen.



There has been a near-accident when the drainpipe leading into the basement drain became dislodged with the force of a downpour. Archives staff heard the rushing water and re-seated the drainpipe. Since they may not be present the next time this occurs, it is recommended that the drainpipe be firmly seated in a drain cover to be installed over the open drain pit. A cover will also reduce easy access to water for mice and other pests.

It is also recommended that water sensors be installed in the basement and main floor storage areas, either free-standing or tied in to the building's monitoring panel.

When shelving is placed directly against an outside wall, condensation can form on any boxes that are in contact with the wall, or are in a dead-air zone. If possible, move shelves away from exterior walls or pull boxes on these shelves away from the wall, to the extent that the shelf allows.

Early results from the pest traps show moisture-loving pests in the workroom and the basement, none of which pose a direct threat to the Archives' holdings. An **Integrated Pest Management** program (IPM) based on the principles of *Avoid, Block, Detect, Respond & Recover* can be more effective against infestations than stand-alone procedures such as poison, which may not treat the cause of an infestation. It is based on six steps:

1. **Reduce the risk of pest infiltration for the building.** Seal all exterior cracks and holes around windows, door frames or light fixtures[2]. Cover vents with fine copper mesh, sealed in place around the edges. Clean debris away from the exterior of your building and if possible, run an 18-inch wide path of pea gravel around it. Keep dumpsters tightly closed. Examine new acquisitions before they enter the building or isolate them until you can be sure that they are pest-free. Remove dead leaf or other organic material from around the building and ensure good drainage. Eliminate damp areas inside.

2. **Avoid providing a habitat for pests.** Maintain clean, orderly storage rooms, especially in attics and basements, and dispose of empty cardboard boxes. Maintain plumbing and line toilet tanks to reduce leaks and condensation. Choose sheet flooring instead of floor tiles to avoid insects living in the cracks. Avoid false ceilings as they provide pathways to rodents. Store boxes on shelves, and not in direct contact with the floor.

3. **Avoid providing food to pests.** Avoid storing food in desk drawers, or eating at desks. Check the coils and insulation on fridges for insects. Keep foodstuffs in sealed containers. Store garbage and recycling *in covered containers* and empty them every day. Wash dirty dishes as they occur. Keep the cupboards under sinks clean and organized as they are close to a source of water, and provide excellent hiding places.

[2] *An adult mouse can squeeze through a 2-cm hole and a large adult beetle requires only 1.5 mm.*

4. **Implement regular housekeeping.** Fit a HEPA filter to your vacuum cleaner and use a crevice tool to vacuum up lint, hair and other organic debris in cracks, crevices and corners, behind radiators, under shelving units and in closets.

5. **Monitor.** If you suspect that there is a pest problem in the building, monitor with purchased or home-made traps so that you can identify the pests and where they are located. Inspect under sinks, to make sure there isn't a leaky pipe.

6. **Determine the source of the problem**. As well as dark spaces like closets or attics, insects could be occupying an abandoned bird's nest, or the carcass of a dead rodent. A large number of pillbugs, sowbugs, booklice and silverfish can indicate moisture problems which require evaluation by a contractor trained in moisture/mould remediation.

Although the Archives moved into the building as a temporary measure, it has been there for two years and will remain there for the foreseeable future. It is recommended that the Archives take into consideration the current and future needs of the holdings as well as the length of time it intends to stay in this building. The longer the stay, the more changes can be requested, especially if they also lead to greater energy efficiency. Should the Archives decide upon a longer occupancy, upgraded windows and improvements to the HVAC equipment would be worth negotiating. The Archives may also wish to invest in taller shelving units, either free-standing or mobile, to maximize use of the space.